

### Claims

1. - A method for performing pressure, respectively pressure profile, measurements  
5 in mammals by means of the pressure profile sensors technique, which  
comprises
- a) introducing into the mammal a catheter having at least a portion of its wall  
10 which is sufficiently flexible to be deflected by external pressure;
  - b) Introducing progressively into the catheter lumen an electrically conductive  
liquid substance while applying simultaneously to it alternative current and  
mechanical oscillations;
  - 15 c) detecting by means of an electrode placed at the external surface of the  
subject the leakage current induced by the liquid substance traveling through  
the catheter;
  - d) transferring the leakage current thus recorded to a converter suitable to  
20 convert the leakage current parameters provided thereto into corresponding  
pressure values; and
  - e) displaying the pressure values as such, or as a function of the measurement  
25 location or measurement period or both to afford corresponding pressure  
profiles.
2. - Method of claim 1, wherein the alternative current is a low voltage/high frequency  
current and wherein the mechanical oscillations have controlled amplitude and  
frequency.
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3. - Method according to claims 1 and 2, wherein the catheter is made of innocuous polymer plastic material, preferably of non-conductive innocuous polymer plastic material.
- 5 4. - Method according to claims 1 to 3, wherein the catheter is a single lumen or a multi-lumen catheter.
5. - Method according to claims 1 to 4, wherein the electrically conductive liquid substance is an aqueous liquid, preferably a saline solution.
- 10 6. - Method according to claims 1 to 5, wherein the liquid substance is progressing step-by-step through the catheter lumen.
7. - Method according claims 1 to 6, wherein the alternative current voltage applied to the liquid substance is comprised between about 500 mV and about 6 V, preferably between about 1 and about 4 V.
- 15 8. - Method according to claims 1 to 7, wherein the alternative current frequency applied to the liquid substance is comprised between about 60 and 130 kHz, preferably between about 80 and 120 kHz.
- 20 9. - Method according to claims 1 to 8, wherein the mechanical oscillations applied to the liquid substance have an amplitude of about max. 4 mm and a frequency of about max 15 Hz, preferably of about 2mm, respectively about 10 Hz.
- 25 10. - Use of the method according to claims 1 to 9 for performing pressure, respectively pressure profile measurements in mammal body tracts or cavities such as lung, esophagus, stomach, intestine, urinary tract or bladder, or blood vessels.

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11. - Use of the method according to claims 1 to 10 for performing real time pressure, respectively pressure profile measurements.
- 5 12.- Use of the method of claims 1 to 9 for performing ex-temporaneum pressure, respectively pressure profiles measurements by recording the pressure values provided by the converter and by displaying them at a time different from that of the leakage current recording.
- 10 13. - An apparatus for performing the method of claims 1 to 9, which comprises
- a source of an electrically conductive liquid substance connected to an alternative current source;
  - peristaltic pumping means fitted directly to the source of liquid substance;
  - 15 - mechanical oscillation means connected downwards to peristaltic pumping means;
  - an electrode placed at the external surface of the subject for recording and then  
20 transferring the detected leakage current to the converter;
  - a converter suitable for deriving pressure values from the leakage current parameters which have been transferred thereto; and
  - 25 - means suitable to display pressure values as such, or as a function of the measurement location or measurement period or both.